Method for Generating a Model of a Circuit Element

ABSTRACT

5   The present invention includes a method for generating a model of a circuit having an input port and an output port. The method determines an amplitude for current leaving the output port at a frequency ω_k when a signal that includes a carrier at ω_j modulated by a signal $V_j(t)$ is input to the input port, wherein ω_k is a harmonic of ω_j. The determined amplitude is used to determine values for a set of constants, $\mathbf{a}^k$, such that a function $f_k(\mathbf{V}, \mathbf{a}^k)$ provides an

10   estimate of the current, $I_k(t)$, leaving the output port at a frequency ω_k when a signal having the form

$$V(t) = \mathrm{Re} \sum_{k=1,H} V_k(t) \exp(j\omega_k t)$$

is input to the input port. Here $V_k(t)$ is a component of a set of values $\mathbf{V}$. The $f_k(\mathbf{V}, \mathbf{a}^k)$ are used to provide a simulator component adapted for use in a circuit simulator.